

We Claim:

1. In an electronic device running a software tool that generates output descriptions in response to input descriptions, a method for tracing output descriptions generated from
5 corresponding input descriptions, wherein the electronic device includes a display, the method comprising:
 - displaying the input descriptions and the output descriptions together on the display;
 - scrolling one of the input descriptions and the output descriptions; and
 - in response to scrolling one of the input descriptions and the output descriptions,
10 scrolling the other descriptions automatically in proportion to an amount of scrolled descriptions in the one of the input descriptions and the output descriptions.
2. The method of claim 1 wherein the input and output descriptions include code descriptions expressed in programming languages.
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3. The method of claim 2 wherein the output descriptions include multiple output descriptions displayed in different panes.
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4. The method of claim 3 wherein each of the multiple output descriptions is expressed in a different programming language than other output descriptions.
5. The method of claim 1 wherein the input descriptions and the output descriptions are displayed in separate panes of a same window
- 25 6. The method of claim 1 wherein the input descriptions and the output descriptions are displayed in separate windows.
7. The method of claim 1 further comprising
 - providing a first scrolling tool for scrolling the input descriptions; and
 - 30 providing a second scrolling tool for scrolling the output descriptions.
8. The method of claim 7 wherein the first and second scrolling tool includes scrolling bars.

9. The method of claim 7 wherein in response to controlling one of the first scrolling bar and the second scrolling bar, the other scrolling bar is automatically controlled in proportion to an controlled amount in said one of the first scrolling bar and the second scrolling bar.

5 10. The method of claim 1 further comprising, in response to scrolling one of the input descriptions and the output descriptions, displaying corresponding input descriptions and output descriptions adjacent to the scrolled descriptions on the display.

11. In an electronic device running a software tool that generates output descriptions in
10 response to input descriptions, a method for tracing an output description generated from a corresponding input description, wherein the electronic device includes a display, the method comprising:

displaying the input descriptions and the output descriptions together on the display;
providing a first focus in one of the input description and the output description; and

15 in response to providing the first focus in the one of the input descriptions and the output descriptions, providing a second focus automatically in the other descriptions.

12. The method of claim 11 wherein the first focus and the second focus are presented in a
start position of the input description and the output description.

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13. The method of claim 11 wherein the first focus and the second focus are presented on a
same line on the display

14. The method of claim 11 wherein the first and second focuses are presented in a middle of
25 the input description and the output description.

15. The method of claim 11 wherein the input description and the output description which
the first focus and the second focus are presented to, respectively, make cross-references to
each other.

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16. The method of claim 15 wherein the cross-references includes reference numbers to the
input description and the output description.

17. The method of claim 16 wherein the reference number to the input description is same as the reference number to the output reference.

18. The method of claim 15 wherein the cross-references are attached to the input description and the output description using XML (Extensible Markup Language) programming language.

19. The method of claim 11 wherein the focus includes a cursor.

20. In an electronic device running a software tool that generates output descriptions in response to input descriptions, a method for tracing an output description generated from a corresponding input description, wherein the electronic device includes a display, the method comprising:

displaying the input descriptions and the output descriptions together on the display;
selecting a first segment in one of the input descriptions and the output descriptions;

and

in response to selecting a first segment in the one of the input descriptions and the output descriptions, selecting a second segment in the other descriptions automatically, wherein the second segment corresponds to the first segment.

21. The method of claim 20 wherein the segment is highlighted.

22. The method of claim 20 wherein a background of the segment is colored.

23. The method of claim 20 wherein the first segment includes a plurality of lines.

24. The method of claim 23 wherein the plurality of lines is highlighted in different colors and corresponding lines in the second segment are highlighted in same colors as the first segment.

25. The method of claim 20 wherein a portion in the first segment and a corresponding portion in the second segment are coupled through a connection line to indicate that the coupled portions in the first and second segments are corresponding to each other.

26. The method of claim 20 wherein the input descriptions in the first segment and the corresponding output descriptions in the second segment make cross-references to each other.

27. The method of claim 26 wherein the first segment includes a part of a line in the input descriptions and the part of the line in the first segment makes a different reference to corresponding part of a line in the second segment.

28. The method of claim 23 wherein the first segment include a plurality of lines and each of the plurality of lines in the first segment makes a different reference to corresponding lines in the second segment.

29. The method of claim 26 wherein multiple references are made to a common line in the second segment, the common line being shared by more than one line in the second segment.

30. The method of claim 26 wherein the cross-references are attached to the input description and the output description using XML (Extensible Markup Language) programming language.

31. A system for translating input code to output code, the system comprising:

a code generator for receiving the input code and generating the output code that corresponds to the input code;

a markup generator for generating input and output code markup files for displaying the input and output code; and

a display tool for displaying the input and output code on a display using the input and output code markup files,

wherein the display tool displays the input code and corresponding output code together on the display so that users are able to trace the output code generated from corresponding input code and the input code from which corresponding output code is generated.

32. The system of claim 31 wherein the markup generator generates the input and output code markup files using markup programming languages.

33. The system of claim 31 wherein the markup files contain cross-references to input code and corresponding output code.

34. The system of claim 33 wherein the cross-references include line references to each line of the input code and corresponding output code.

35. The system of claim 33 wherein the cross-references include line references to each line of the output code and corresponding input code.

36. The system of claim 33 wherein the cross-references include references to each element of the input code and a corresponding output code element.

37. The system of claim 33 wherein the cross-references include references to each element of the output code and a corresponding input code element.

38. The system of claim 31 wherein the display tool provides a graphical user interface element in which the input code and the output code are displayed together.

39. The system of claim 31 wherein the display tool displays the input output code on separate windows.

40. The system of claim 31 wherein the input code and the output code are described in a textual format.

41. A medium holding instructions executable in an electronic device running a software tool that generates output descriptions in response to input descriptions, wherein the electronic device includes a display, comprising:

displaying the input descriptions on one side of the display and the output descriptions on the other side of the display;

scrolling one of the input descriptions and the output descriptions; and

in response to scrolling one of the input descriptions and the output descriptions, scrolling the other descriptions automatically in proportion to an amount of scrolled descriptions in said one of the input descriptions and the output descriptions.

42. The medium of claim 41 further comprising
providing a first scrolling tool for scrolling the input descriptions; and
providing a second scrolling tool for scrolling the output descriptions.

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43. The medium of claim 42 wherein in response to controlling one of the first scrolling bar and the second scrolling bar, the other scrolling bar is automatically controlled in proportion to an controlled amount in said one of the first scrolling bar and the second scrolling bar.

10 44. A medium holding instructions executable in an electronic device running a software tool that generates output descriptions in response to input descriptions, wherein the electronic device includes a display, comprising:

displaying the input descriptions on one side of the display and the output descriptions on the other side of the display;

15 presenting a first focus in one of the input description and the output description and in response to presenting of the first focus in said one of the input descriptions and the output description, presenting a second focus automatically in the other description.

20 45. The medium of claim 44 wherein the input description and the output description which the first focus and the second focus are presented to, respectively, make cross-references to each other.

46. The medium of claim 45 wherein the cross-references includes reference numbers to the input description and the output description.

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47. A medium holding instructions executable in an electronic device running a software tool that generates output descriptions in response to input descriptions, wherein the electronic device includes a display, comprising:

30 displaying the input descriptions on one side of the display and the output descriptions on the other side of the display;

marking a first segment in one of the input descriptions and the output descriptions;
and

in response to marking a first segment in one of the input descriptions and the output descriptions, marking a second segment in the other descriptions automatically, wherein the second segment corresponds to the first segment.

- 5 48. The medium of claim 47 wherein the input descriptions in the first segment and the corresponding output descriptions in the second segment make cross-references to each other.
49. The medium of claim 48 wherein the first segment include a plurality of lines and each of the plurality of lines in the first segment makes a different reference to corresponding lines in
- 10 the second segment.